The two perforated plates must rest on rings or projecting ledges, that the charcoal may be renewed, and the lower plate may be taken out occasionally and cleared from the dregs which otherwise would stop up its holes.

No. XIX.

FIRE ESCAPE.

The large SILVER MEDAL *was presented to Mr.* DAVID DAVIES, 15, *Wigmore Street, Cavendish Square, for his Fire Escape; a Model of which has been placed in the Society's Repository.*

THE Society have already published several machines or contrivances to enable the inmates of a house on fire to escape from the upper stories, in which the bed-rooms are generally placed. The machine invented by Mr. Davies is remarkable for its simplicity and for bringing into action a principle that hitherto has not been applied to this purpose. It has not yet been used in any actual case of fire, but the machine has been made full size; and, from the result of trials made with it at the Society's premises and elsewhere, it is evidently capable of enabling persons to descend unhurt from the upper story of a high house. The proposal of the inventor is, that it should be used from within; but so few houses, comparatively speaking, are burnt down, that hardly any person would be at the trouble and expense even of the simplest means of rescuing himself and family from a destruction, of which

it is very improbable that he should ever be unfortunate enough to incur the hazard. But by means of a jointed pole, or even of a cord with a ball at the end, there would be no difficulty in conveying Mr. Davies's apparatus from the street to the window of a house on fire. Thus one apparatus would serve the probable exigency of a neighbourhood, and might be kept in readiness at the watch-house or any other suitable place.

In Plate IV. the different parts of the apparatus and its use are represented. It consists of a doubled rope *b c*, fig. 1, considerably longer than the height of the house; one end is formed into a loop by the binding *d*, the hook *a* having been previously put on. A number of slings, proportioned to the persons in the house, made of girth webbing, are to be put on this end of the rope, as seen in fig. 7, *ff*. These slings consist of the loop of webbing *f*, fig. 4, of the slider of leather *k*, and of a copper tube *e* (the tube is shewn by itself, fig. 5). Below these slings is placed the spring *h*, the knobbed end of which prevents the slings from slipping down by their own weight. The cord with the slings, &c. ready for use, may be coiled on a reel, fig. 7, and hung on a hook, where it may be covered from dust and damp by a round curtain, fig. 8.

In case of fire, the apparatus is to be taken down from under its cover, and the hook *a*, fig. 1, is to be put into a staple or eye fixed in the ceiling, in front of one of the windows. The rope is then to be unreeled and the loose ends are to be thrown out of window to the people below. (If there is not time to unreel the rope, the reel with the rope on it may be thrown out of window, and the rope will unreel as it descends.) The people below having got the ends of the rope, are to divide into two parties, each having hold of one end; they are to separate

from one another so far that the rope shall make a wide angle *b c*, fig. 6. The nearest sling is then to be placed under the arms of one of the persons in danger, and the leathern slide is to be drawn down to tighten the girth: the person is then to throw himself from the window-sill and will begin to descend in the manner represented by *l*, fig. 6. As he descends, the angle formed by the ropes becomes wider, and therefore the resistance is continually increasing, and with it the velocity is proportionably diminishing, so that by the time he reaches the ground there will be no hazard of his striking against it with any dangerous momentum. There should be at least four or five people holding each end of the rope.

When the person is landed, the sling should be, with all expedition, taken off the rope, and the two ends separated, as at first, before the next person attempts to descend.

The public have now a great number of fire-escapes presented to their notice, but the principal thing is still wanting, namely, an organisation by parishes or smaller neighbourhoods to give a fair trial to any plan of relief from without that may be selected. J. Hesse, Esq. of Stoke Newington, has exerted himself very meritoriously to this end, and has succeeded in rescuing from the flames two persons by the simplest of all the contrivances, namely, a canvass bag with a rope tied to it. The rope should be at least twice as long as the highest house in the neighbourhood, and should likewise have some strong pack-thread fastened at one end to the bag, and at the other to a cricket-ball. The ball being thrown into the window where the people to be relieved are, the bag is

to be drawn up by the pack-thread, and the rope is to be passed once or twice round the bed-post; by the friction thus occasioned, a man may lower in safety a woman or two children in the bag, and may afterwards lower himself by getting into the bag, retaining hold of the rope.

No. XX.

SLIDING AXLE.

The SILVER ISIS MEDAL *was voted to Mr. W.* TINDALL, *of Leeds, for his Sliding Axle; a Model of which has been placed in the Society's Repository.*

THE novelty of this contrivance consists in placing in the axle of the wheel itself the apparatus necessary to enable it to move obliquely. It may be applied to the front wheel of a three-wheeled carriage, and, with a little modification, to the front wheels of a four-wheeled carriage. It has not hitherto been applied to use, and its novelty and ingenuity are the chief motives that have induced the Society to lay it before the public.

The axle *aa*, Plate XIII. figs. 1, 2, and 3, contains the apparatus in itself which allows the wheel to be turned either to the right or left; it is, therefore, hollow, and the front bar of the carriage-frame *bb* passes through and is supported within it. This bar *b* has vertical pivots *cc*, shewn separate in fig. 4, on which the axle and wheel turn obliquely, either right or left, as shewn by the dotted lines in the horizontal section of the wheel *dd*,